2-Deburr

Work Order II September-11-13 11:3			*106	728*					Page 1
Item ID: D302 Revision ID:	28-1		Accept	*N9000	74010	n * s	Setup Star	*N	S1*
Item Name: Stud							Stop	*N.	S2*
Start Date: 9/11/ Required Date: 9/11/ Reference:	~ .	, , ,		Cust Item ID Customer:):				
						F	Run Star	^t *N	D1*
Approvals: Proc QC:	cess Plan:	Date:	Tooling: SPC (Y/N):	Dat			Stop	,	R2*
Sequence ID/ Work Center ID	Operation Description		Set Up/ Run Hours	Tool ID	Tool # Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D3028	Rev A								
*100 *100* Hardinge Hardinge CNC Lathe Small	Hardinge CNC LATHE Memo 1-Turn blan	SMALL nk per Dwg D3028 and FA26	0.00 AS 0.00 44 9-89	13/09/25	•	20	ø		
110 *110* QC Quality Control	QC2- Inspect parts off r Memo	nachine FAI/FAIB	0.00 AS 0.00 9-89.	13/09/25		20	ø		
120 *120 *HAAS I HAAS CNC vertical machin	HAAS CNC VERTICA Memo ne#1 1-Cut groo	L MACHINING #1 ve as per Dwg D3028 and FA	0.00 MH			20	<u> </u>		

											DQA:	Date	
NCR: Yes / No WORK ORDER							COI	NFORN	MANCE / UP	DATE	QA Closed:	Date	
						DISPOSITION		Ī		AGAINST DE		• • •	
Work Orde	er:					DISPOSITION				AGAINST DE			_
	_					Rework]		Skid-tube	Crosstube		Water Jet	Engineering
Part N	No.					Scrap		ľ	Machining	Small Fab	Pro	d. Eng. Coor.	Quality
						Use-as-is		Therm	noforming	Finishing	Rec/Sto	re/Packaging	Other
NCR I	۷o.			·		Work Order Update			Large Fab	Composite]	Supplier	
Root					Descri	ption of work order update		Initial	Ac	tion	Sign &		
Cause		Date	Step	Qty	(or Non-conformance	Cł	nief Eng	Desc	ription	Date	Verification	QC Inspector
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Equip/Tooling													
Operator													·
Material	Ш			İ									
Setup													
Other	Ш		ļ									į	
Process							1						
Supplier			İ									1	
Training	<u> </u>												
Unapproved			<u> </u>			.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,]		
							FAU	LT CATE	GORY				
Landi	ing (1				General	_	30			المالية	Г	7,,,,,,,
	⊢	Bending				Bend	\vdash	Grain		-	Ovalized	<u></u>	Pressure/Forced
	<u> </u>	Centre N	ot Conce	ntric to	o/s	BOM/Route	\vdash	Hardwa		<u> </u>	Over/Under	-	Temperature/Cure
	<u> </u>	Cracks			<u> </u>	Broken/Damaged	-	-4	on incomplete		Part Incorre		Weld
	\vdash	Crushed/	Crimped		<u> </u>	Burrs	\vdash	-	ions Incomplete/	Unclear	Part Lost/M	issing	Wrong Stock Pulled
	\vdash	Cuffs			_	Contamination	\vdash	Mainte		<u> </u>	Part Moved		
	<u></u>	Heat Tre			_	Countersink	\vdash	Mislabe		<u> </u>	Positioned \	_	٦
Inspection Strip in Tube Cut Too Short					Cut Too Short	l	Misread	t		Power Loss,	Surge	Other	

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Torque Waves in Extrusion

Drill Holes

Drawing

Finish

Folio

106728

Page 2

September-11-13 11:34:48 AM Item ID: D3028-1 Accept *N900040100* Setup Start **Revision ID:** Item Name: Stud **Start Oty: 20.00** *20* **Start Date:** 9/11/13 **Cust Item ID:** Req'd Qty: 20.00 Required Date: 9/11/13 **Customer:** Reference: Run Start Process Plan: Date: Tooling: **Approvals:** Date: Stop OC: Date: SPC (Y/N): Date: Sequence ID/ Operation Set Up/ Tool ID Tool # Plan Accept Reject Reject Insp. **Work Center ID** Description **Run Hours** Code Qty Qty Number Stamp QC2- Inspect parts off machine FAI/FAIB 130 0.00 13/10/27 MH *130* 20 B QC 0.00 Memo Quality Control or 13/10/28 140 QC8- Inspect parts - second check 0.00 *140* 20 10 _____ QC 0.00 Memo Quality Control Outsource process-Cadplate per QSI017 4.1.9.1 150 0.00 CL 13/10/01 20 *150* Outsource3 0.00 Memo Issue P/O: 2 1906 Outsource process - Cad plate Finish: Cadmium plate per QQ-P-416F Class 1, Type II

Material release note is required.

												DQA:	Da	te:	
NCR: \	⁄es	/ No				WORK ORDER NON-O	100	VFORM	MANCE / UP	DATE		·	<u> </u>		
									-			QA Closed:	Da	te:	
Work Orde	sr.					DISPOSITION				AGAINST (DΕ	PARTMENT	PROCESS		
WOIK Olde	-					Rework	1		Skid-tube	Crosstube]	Water Jet		Engineering
Part N	No.					Scrap	1	1	Machining	Small Fab		Pro	d. Eng. Coor.		Quality
	•					Use-as-is]	Thern	noforming	Finishing		Rec/Stor	e/Packaging		Other
NCR I	۷o.					Work Order Update]		Large Fab	Composite			Supplier		
			f	r .			_								
Root				1	Į	ption of work order update	1	Initial	-	tion		Sign &			
Cause		Date	Step	Qty	'	or Non-conformance	Cr	nief Eng	Desc	ription		Date	Verificatio	n	QC Inspector
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Landi	ng (Gear				General		_		_		-		_	-
		Bending				Bend		Grain				Ovalized			Pressure/Forced
		Centre No	ot Conce	ntric to	o/s	BOM/Route		Hardwa	ire			Over/Under	tolerance		Temperature/Cure
		Cracks			Γ	Broken/Damaged		Inspect	ion Incomplete	1		Part Incorred	ct		Weld

Instructions Incomplete/Unclear

Maintenance

Out of Calibration

Out of Sequence

Outside Dimensions

Mislabeled

Misread

Offset

Wrong Stock Pulled

Other

Part Lost/Missing

Positioned Wrong

Power Loss/Surge

Part Moved

Turning Sequence
Wave/Twist in Tube

Ripples in Bend

Crushed/Crimped

Inspection Strip in Tube

Torque Waves in Extrusion

Cuffs

Heat Treat

Burrs

Contamination

Countersink

Cut Too Short

Drill Holes

Drawing

Finish

Folio

Work Orde September-11-13	r ID 106728 11:34:48 AM		*106728*											
Revision ID: Item Name:	D3028-1 Stud 9/11/13 Start Qty	• 20.00	*20*	Accept	*N900		100	* s	etup	Start Stop	*NS1* *NS2*			
Required Date: ! Reference:	= •		*20*		Customer:	ID;								
Approvals:	Process Plan:	Date:_		Tooling:	D	ate:		F	Run	Start	*NR1*			
	QC:	Date:_		SPC (Y/N):	D	ate:				Stop	*NR2*			
Sequence ID/ Work Center ID	Operation Descriptio			Set Up/ Run Hours	Tool ID			Accept Qty	Reje Qty		Reject Insp. Number Stamp			
160	Receive & In	spect for Damage & Ma	it'l Certs	0.00					1.					
160 Packaging Packaging	ī	Memo		0.00			-		<u> </u>	3/4/	g (2e)			
165	QC5- Inspect	part completeness to sto	ep on W/O	0.00 DAS 27			C	V ~						
165	,	Memo .		0.00 2.89	11-08		0	N						

Identify as per dwg & Stock Location: 51024

170 Packaging

Ensure Material Release Note is attached Packaging

 $20 \times \frac{DAS}{28} = 13 - 11 - 8$ 9-89

Quality Control

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170

Memo

0.00

Identify and Stock

NCR: Y	/es	/ No				WORK ORDER NON-	COI	NFORN	//ANCE / UPI	DATE			_
											QA Closed:	Date	<u>: </u>
Work Orde	er: _					DISPOSITION				AGAINST DE	PARTMENT		
Part N	•			· · · · · · · · · · · · · · · · · · ·		Rework Scrap Use-as-is Work Order Update		Therm	Skid-tube Machining Moforming Large Fab	Crosstube Small Fab Finishing Composite	4	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root					Descri	ption of work order update	Τ	Initial	Act	ion	Sign &		
Cause		Date	Step	Qty		or Non-conformance	Ct	nief Eng	Descr	iption	Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved							FALL	LT CATE	CORV				
Landi	na G	935				General	-AU	LI CAIL	3011				
Landi		Bending Centre No Cracks Crushed/ Cuffs Heat Trea Inspectio Ripples in	Crimped at n Strip in n Bend	Tube		Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes		Instruct Mainte Mislabe Misread Offset	ion Incomplete ions Incomplete/U enance eled	Jnclear	Ovalized Over/Under Part Incorre Part Lost/M Part Moved Positioned N Power Loss/	ct issing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other
1	1 1	Torque W	/aves in (Extrusio	n I	Drawing	-	Out of 0	Calibration				

Out of Sequence

Outside Dimensions

DQA:

Date:

Turning Sequence

Wave/Twist in Tube

Finish Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work Ord September-11-1				*106					Page 4			
Item ID: Revision ID: Item Name:	D3028-1 Stud			Accept	*N900	<u>040</u>	100	*	Setup	Start Stop	ΙΔ	S1* S2*
Start Date: Required Date Reference:	9/11/13 : 9/11/13	Start Qty: 20.00 Req'd Qty: 20.00	*20* *20*		Cust Item Customer:	D:						
Approvals:	Process P QC:	lan:	Date:	Tooling: _ SPC (Y/N):		ate:			Run	Start Stop	1/7	R1* R2*
Sequence ID/ Work Center I	D	Operation Description QC21- Final Inspection -	Work Order Release	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Re Qt	ject y	Reject Number	Insp. Stamp
120		Memo		0.00				-9	7 9/	fl	131	11-4

Quality Control

13-11-11

			DQA:	Date:	
NCR:	Yes / No	WORK ORDER NON-CONFORMANCE / UPDATE			•

											QA Closed:	Date	e:
Work Ord	er.		- -			DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
Part I	No.					Rework Scrap Use-as-is Work Order Update		ا Therm	Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite		Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root					Descri	ption of work order update	In	itial	Ac	tion	Sign &		
Cause		Date	Step	Qty	(or Non-conformance	Chie	ef Eng	Desc	ription	Date	Verification	QC Inspector
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Land	ing (1				General					7	-	
		Bending			<u> </u>	Bend	$\boldsymbol{\vdash}$	Grain			Ovalized		Pressure/Forced
		Centre N	ot Conce	ntric to	o/s	BOM/Route	\mathbf{H}	Hardwa			Over/Under	tolerance	Temperature/Cure
	$ldsymbol{ldsymbol{ldsymbol{eta}}}$	Cracks			<u> </u>	Broken/Damaged	-	-	ion Incomplete		Part Incorre		Weld
		Crushed/	'Crimped			Burrs			tions incomplete/	'Unclear	Part Lost/Mi	issing	Wrong Stock Pulled
		Cuffs			<u> </u>	Contamination	-		enance		Part Moved		
		Heat Trea				Countersink	-	Mislabe			Positioned V		_
	\perp	Inspectio	n Strip in	Tube		Cut Too Short	\vdash	Misread	d		Power Loss/	'Surge [Other
		Ripples in	n Bend			Drill Holes	Ц	Offset					
	L	Torque V	Vaves in I	Extrusio	n _	Drawing	Щ	Out of (Calibration			· · · · · · · · · · · · · · · · · · ·	
	L	Turning S	Sequence	!		Finish	Щ	Out of !	Sequence			····	
		Wave/Tv	vist in Tul	be		Folio	Outside Dimensions						

September-11-13 11:34:48 AM

Page 1

Work Order ID:

106728

Parent Item:

D3028-1

Parent Item Name:

Stud

Start Date: 9/11/13

Required Date: 9/11/13

Start Qty: 20.00

Required Qty: 20.00

Comments:

IPPB02.09.10Made on Cobra KJ

PC	08.11.06	Added QC6	K

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M4130NR0.750 4130 steel RD bar .750"		Purchased	No			110	f	11.3480	0.125	2.6315789	1		
4130 steel RD 6tt .730				Location		Loc Qty	<u>Lo</u>	c Code		· · · · · · · · · · · · · · · · · · ·			
				MAT031		11.348							
				1118	23	1.648				10 -	— ì .	101	1
				★ 1237	72	9.7			7.	52	アメ	13109	125

											DQA:	Date:	
NCR: Ye	es	/ No				WORK ORDER NON-	COI	VFOR	MANCE / UP	DATE	OA Classel	Data	•
							1				QA Closed:	Date:	
Work Order	. .					DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
Work Order	' · -		····			Rework	7		Skid-tube	Crosstube	1	Water Jet	Engineering
Part No	0.					Scrap	1		Machining	Small Fab	Pro	d. Eng. Coor.	Quality
	-					Use-as-is	1	1	noforming	Finishing	-	re/Packaging	Other
NCR N	o					Work Order Update]		Large Fab	Composite]	Supplier	
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Root					Descri	iption of work order update	1	Initial	Ac	tion	Sign &		
Cause		Date	Step	Qty	-	or Non-conformance	Ct	nief Eng	Desc	ription	Date	Verification	QC Inspector
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Landin	ıg G	ear	<u> </u>			General		_			_		
		Bending				Bend		Grain			Ovalized		Pressure/Forced
1 [Centre N	ot Conce	ntric to	o/s	BOM/Route		Hardwa	are		Over/Under	tolerance	Temperature/Cure

Inspection Incomplete

Maintenance

Out of Calibration

Out of Sequence

Outside Dimensions

Mislabeled

Misread

Offset

Instructions Incomplete/Unclear

Part Incorrect

Part Moved
Positioned Wrong

Part Lost/Missing

Power Loss/Surge

Weld

Other

Wrong Stock Pulled

Broken/Damaged

Contamination

Countersink

Cut Too Short

Drill Holes

Drawing

Finish

Folio

Burrs

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Turning Sequence
Wave/Twist in Tube

Ripples in Bend

Cracks

Cuffs

Heat Treat

Crushed/Crimped

Inspection Strip in Tube

Torque Waves in Extrusion

DART AEROSPACE LTD	Work Order:	106728
Description: Stud	Part Number:	D3028-1
Inspection Dwg: D3028 Rev: A		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

	X	First Arti	cle	Prot	otype	
Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
1.40	+/-0.030	1.401	1		FK-OH	Vern.
0.55	+/-0.030	,548			n	ŧ ₁
0.110	+/-0.010	e i lO			1,	4
0.100	+/-0.010	,105,			1.	4
0.05	+/-0.030	°020			h	ly .
0.025 x 45°	+/-0.010 x 0.5°	OSS X45°			h	1
R0.060	+/-0.010	ಿ ೦೦೦	1		ħ	6)
0.385	+/-0.010	386	7		Ŋ	Ŋ
Ø0.750	+0.000/-0.015	745	7		7)	h
0.10	+/-0.030	.093			194-04	Caliper
MOW	Min: 0.3315 Max: 0.3352	*3325	7		FK-09	Mic.
5/16-24 UNF-2A	Min: 0.3042 Max: 0.3114	*30d2_	7		15	n
_						
	1	 	 	 	 	

	SAS				
Measured by:	44]/	Audited by:	and a	Prototype Approval:	N/A
Date:	13/09/25	Date:	13/10/28	Date:	N/A

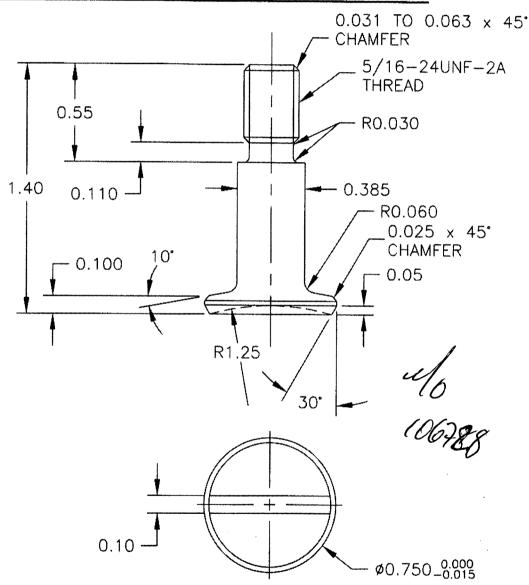
	bbioned	Revised by	Date Change	ev Date	Rev.
A 08.10.17 New Issue	<i>N</i>	KJ/DD	08.10.17 New Issue	A 08.10.17	Α

MH 13/10/27



DESIG	P	DRAWN BY		ROSPACE LTD , ONTARIO, CANADA
CHEC	KED #	APPROVED	DRAWING NO. D3028	REV. A SHEET 1 OF 1
DATE			TITLE	SCALE
01.0	05.18		STUD	2:1
Α		01.05.18	NEW ISSUE	

SPECIFICATION CONTROL DRAWING



- POSSIBLE SUPPLIER: NORTHERN AERO INDUSTRIES P/N B83602-1
- MATERIAL: AISI 4130N BAR PER MIL-S-6758 OR AMS 6348/6370/6528
- THREADS PER MIL-S-7742
- FINISH: CADMIUM PLATE PER QQ-P-416F CLASS 1, TYPE II
- ALL DIMENSIONS ARE IN INCHES.
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.

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Dart Aerospace Ltd. 1270 Aberdeen Street Hawkesbury, ON K6A 1K7

Tel: 613 632 9577 Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO21906

Purchase Order Date 11/1/2013 PO Print Date 11/5/2013

Page Number 1 of 1

Order From:

CADORATH COATING 2150 LOGAN AVE. WINNIPEG, MB R2R 0J2 CA

VC-CAD002

DART AEROSPACE LTD Ship To:

1270 ABERDEEN

HAWKESBURY, ON K6A 1K7

CANADA

Contact Name

Vendor Phone

Ship To Contact

Ship To Phone

Ship Via: Ship Acct: 204 633 9420

FedEx PI collect

Buyer

Chantal Lavoie

Customer POID Customer Tax #

10127-2607

Terms

Net 30

Currency

CAD

FOB

CD

Destination-Collect

Line Nbr	Reference Vendor Part Number Line Comments Delivery Comments	Description/ Mfg ID	Req Date/ Taxable Promise Date
1	106728	D3028-1 STUD	11/15/2013 Yes
		ER QQ-P-416F CLASS 1, TYPE II	11/15/2013

Extended PO Unit Price Req Qty/ Unit of Measure \$210.00 \$10.50 20.00

Line Total:

\$210.00

Price

PO Total:

\$210.00

Note: Pricing listed above is as per contract agreement between Dart Aerospace and the respective manufacturer.

No substitution or deviation without consent.

Certificate of Conformity or Material Certification required YES

PST# 6122-5207

11/5/2013

Change Nbr:

3

Change Date:

Packing Slip



Sold To:

Dart Aerospace Ltd.

1270 Aberdeen St.

Hawksbury, ON K6A 1K7

P/N D3028-1

ShipTo:

Cadorath Coating

2150 Logan Avenue, Winnipeg, Manitoba R2R-0J2 **Phone:** (204) 633-9420 **Fax:** (204) 633-8033

INVOICE NUMBER:

S68370

Net 2% Interest Per Month charged on Overdue Accounts. Any claims for shortages, overcharges, or damaged goods must be made within seven (7) days from receipt of goods.

Customer Order #: DateReceived:	Terms:	G.S.T. #:	Ship Via:	Ship Date:
P.O21906 Nov-05-2013	NET 30 DAYS	10071 6547 RT0001	and the second s	Nov-07-2013
Item # Qty P/N & Description				
1 20 EA STUD	. 2/1	J 106728		····

W/O 130104

CERTIFICATE OF CONFORMANCE

CADORATH PLATING CO. LTD. 2150 LOGAN AVENUE WINNIPEG, MANITOBA R2J-0J1

DATE:

Nov-07-2013

CONSIGNED TO: Dart Aerospace Ltd.

1270 Aberdeen St.

Hawksbury, ON K6A 1K7

W/O #:

130104

INVOICE #:

68370

CONTRACT OR

PURCHASE ORDER #

PO21906

DESCRIPTION:

20

P/N # D3028-1

S/N # 106728

CADMIUM PLATING IAW AMS-QQ-P-416C TYPE 2 YELLOW CLASS 1. BAKE HEAT CHART # 13-973.

CERTIFICATE: I certify that the items indicated here on have been inspected and tested and conform to all specifications and requirements detailed on the contract or purchase order.



Approved Inspector >